CLAIMS

1. Light metal cylinder crankcase for combustion engines with cylinder bushings, having a running layer that forms the running surface and a rough, external bonding layer for bonding the cylinder bushings to the cylinder crankcase while pouring the cylinder crankcase, wherein at least 60 % of the bonding layer relative to the jacket surface of the bonding layer is connected with the casting material of the cylinder crankcase in a material tight manner.

2. Cylinder crankcase according to claim 1, wherein the level of material tight bond between the bonding layer and casting material measures at least 90 %.

3. Cylinder crankcase according to claim 1 or 2, wherein the bonding layer has a layer thickness of 50 µm to 800 µm.

4. Cylinder crankcase according to one of the preceding claims, wherein the bonding layer has an open porosity generated by thermal spraying.

5. Cylinder crankcase according to claim 4, wherein the open porosity of the bonding layer measures at least 10 %v/v.

6. Procedure according to one of the preceding claims, wherein the bonding layer and casting material consist of an aluminum or magnesium alloy.

7. Procedure according to claim 6, wherein the running layer consists of an aluminum or magnesium alloy.

8. Cylinder crankcase according to claim 6 and 7, wherein the running layer of the cylinder bushing consists of an aluminum-silicon alloy with a high silicon content, and the casting material of the cylinder crankcase consists of an aluminum-silicon alloy with a low silicon content, and the bonding layer consists of an aluminum-silicon alloy with a silicon content lying between the silicon content of the running layer and the silicon content of the casting material.

9. Procedure for manufacturing a cylinder bushing for a cylinder crankcase according to one of the preceding claims, in which the running layer is thermally sprayed on a mandrel serving as the molded part, and the bonding layer is thermally sprayed on the running layer, wherein the bonding layer is thermally sprayed in such a way that the bonding layer has an open porosity of at least 10 %v/v.

10. Procedure according to claim 9, wherein he bonding layer is thermally sprayed with a spraying powder having an average grain size of between 60 µm and 400 µm.

11. Procedure according to claims 9 and 10, wherein the bonding layer is thermally sprayed via flame or plasma spraying.

12. Procedure according to one of claims 9 to 11, wherein a spraying material consisting of an

aluminum-silicon alloy is used for thermally spraying the running layer.

13. Procedure according to claim 12, wherein the aluminum-silicon alloy has a silicon content of 12 to 50 %w/w.

14. Procedure according to claim 13 or 14, wherein the spraying material has iron, nickel, magnesium and/or copper in a percentage of 0.5 % to 2 % relative to the weight of the alloy as additional alloy constituents.

15. Procedure according to one of claims 9 to 14, wherein the running layer is thermally sprayed with a spraying powder having a grain size of less than 150 µm.

16. Procedure according to one of claims 9 to 15, wherein a carrier layer is thermally sprayed onto the mandrel before spraying on the running layer.

17. Procedure according to one of claims 9 to 16, wherein a spraying material comprised of tin, zinc, aluminum and/or an alloy of these metals is used for the carrier layer.

18. Procedure according to claim 16 or 17, wherein the carrier layer is removed from the running layer via machining.

19. Procedure according to claim 18, wherein the carrier layer is removed once the running layer of the cylinder bushing poured into the cylinder crankcase

has been sized to its cylindrical operating dimensions via machining.

20. Procedure according to one of claims 9 to 19, wherein the mandrel is made to rotate during the thermal spraying of the carrier layer, running layer and/or bonding layer.

21. Procedure according to one of claims 9 to 20, wherein the mandrel is shrunk via quenching before removed from the still heated thermally sprayed cylinder bushing.

22. Procedure according to one of claims 9 to 21, wherein the cylinder bushing is subjected to heat treatment at a temperature of between 300°C and 550°C.

23. Procedure for manufacturing a cylinder crankcase according to one of claims 1 to 6 using a cylinder bushing manufactured according to one of claims 7 to 20, wherein the temperature of the smelt exceeds the melting point of the bonding layer while pouring the cylinder crankcase.

24. Procedure according to claim 23, wherein the cylinder crankcase is poured using a pressure-assisted procedure.

25. Procedure according to claim 24, wherein the pressure-assisted pouring is performed at a gating rate exceeding 1 m/sec.